



UNITED STATES PATENT AND TRADEMARK OFFICE

HL

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/869,580 | 06/29/2001 | Iain Preston | KC-0052 | 4704 |
| 34610 | 7590 | 03/12/2004 | EXAMINER | |
| FLESHNER & KIM, LLP P.O. BOX 221200 CHANTILLY, VA 20153 | | | FONTAINE, MONICA A | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1732 | |

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/869,580

Applicant(s)

PRESTON ET AL.

Examiner

Monica A Fontaine

Art Unit

1732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 062901.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 16 and 24 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15, 16, 18-22, and 24-28 rejected under 35 U.S.C. 103(a) as being unpatentable over Wood (U.S. Patent 3,653,640), in view of Asano (U.S. Patent 3,466,706). Regarding Claim 15, Wood shows that it is to have a machine for stretch forming a rectangular sheet of plastic material (Abstract), the machine having a first and second orthogonal pairs of opposed elongate clamping means which engagably co-operate with the sides of said sheet and thereby hold said sheet (Figure 1; Column 2, lines 41-58), wherein the elongate clamping means comprise primary clamping means and secondary clamping means, with the primary clamping means engagably and fixedly clamping a side of the sheet of the plastic material and the secondary clamping means engagably clamping a portion of the edge of the rectangular sheet of plastic and being

Art Unit: 1732

adapted to move along the length of the elongate clamping means (Figure 1; Column 2, lines 41-58), the machine including a means to controllably urge apart a first pair of opposed elongate clamping means and thereby stretch a sheet held there between characterized in that the second pair of opposed elongate clamping means uses the movably secondary clamping means to allow said sheet to stretch uniformly in a direction parallel to the lengths of the second pair of elongate clamping means whilst resisting movement of the clamped sides of the sheet in a direction orthogonal to the lengths of the second pair of elongate clamping means (Figures 6-8; Column 3, lines 3-11, 54-68). Wood does not show a subsequent vacuum forming process. Asano shows that it is known to carry out a stretching operation, after which primary clamping means are then used to hold the plastic sheet in a fixed position during the vacuum forming process (Column 4, lines 7-20). Asano and Wood are combinable because they are concerned with a similar technical field, namely, that of stretching operations and apparatuses. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Asano's vacuum forming process after Wood's stretching operation to ensure the absence of air bubbles and other surface deformities in the stretched plastic sheet.

Regarding Claim 16, Wood shows the machine as claimed as discussed in the rejection of Claim 15 above, including a machine including means to controllably urge apart both pairs of opposed elongate clamping means and thereby stretch a sheet held therein in two dimensions, each elongate clamping means using the secondary clamping means to allow said sheet to stretch uniformly in a direction parallel to the length of said individual elongate clamping means whilst resisting movement of the side of the rectangular sheet clamped by said individual elongate

clamping means in a direction orthogonal to the length of said individual elongate clamping means (Figure 9; Column 4, lines 9-32), meeting applicant's claim.

Regarding Claim 18, Wood shows the machine as claimed as discussed in the rejection of Claim 15 above, including a machine wherein the secondary clamps are moved along the length of the elongate clamping means by the motion of the sheet (Column 3, lines 54-75), meeting applicant's claim.

Regarding Claim 19, Wood shows the machine as claimed as discussed in the rejection of Claim 15 above, but he does not show means to heat the plastic sheet. Asano shows that it is known to have a stretching apparatus having heating means for evenly heating a plastic sheet held therein (Column 3, lines 52-59). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Asano's heating means in Wood's stretching apparatus in order to make the plastic sheet as formable as possible to encourage homogeneous stretching.

Regarding Claim 20, Wood shows the machine as claimed as discussed in the rejection of Claim 15 above, but he does not show a vacuum forming means. Asano shows that it is known to have a stretching and vacuum forming apparatus, wherein the vacuum forming means is engagable and adapted to vacuum form a rectangular sheet of plastic stretched by the machine for stretching a rectangular sheet of plastic whilst said rectangular sheet of plastic is still held within the elongate clamping means of the machine by the primary fixed clamping means (Column 4, lines 7-20). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Asano's vacuum forming process after Wood's

stretching operation to ensure the absence of air bubbles and other surface deformities in the stretched plastic sheet.

Regarding Claim 21, Wood shows the machine as claimed as discussed in the rejection of Claim 15 above, but he does not show means to cool the sheet. Asano shows that it is known to have a stretching and vacuum forming apparatus, the machine having a means for selectively cooling zones of the plastic sheet held therein (Column 4, lines 15-20). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Asano's cooling means in Wood's apparatus in order to expedite the entire molding cycle.

Regarding Claim 22, Wood shows that it is known to carry out a method of stretching a rectangular sheet of plastic material (Abstract), the method comprising the steps of engagably holding the sides of said sheet using movable clamping means (Figure 1; Column 2, lines 41-58), stretching said sheet along a first axis of said sheet whilst holding the sides of said sheet parallel to the first axis so as to allow the sheet to stretch proportionately along the first axis but so as to resist deformation of the sides of the sheet orthogonal to the first axis (Figures 6-8; Column 3, lines 3-11, 54-68), and fixedly holding the sides of said stretched sheet using fixed clamping means (Figure 1; Column 2, lines 41-58). Wood does not show means to vacuum form the sheet after it has been stretched. Asano shows that it is known to carry out a vacuum forming operation after a stretching operation (Column 4, lines 7-20). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to carry out Asano's vacuum forming process after Wood's stretching operation to ensure the absence of air bubbles and other surface deformities in the stretched plastic sheet.

Regarding Claim 24, Wood shows the process as claimed as discussed in the rejection of Claim 22 above, including a method involving, simultaneous to stretching said sheet parallel to a first axis, also stretching said sheet along a second axis of said sheet whilst holding the sides of said sheet parallel to the second axis so as to allow the sheet to stretch proportionately along the second axis but so as to resist deformation of the sides of said sheet orthogonal to the second axis, the second axis being orthogonal to the first axis (Column 4, lines 9-32), meeting applicant's claim.

Regarding Claim 25, Wood shows the process as claimed as discussed in the rejection of Claim 22 above, including a method wherein the secondary clamps are adapted to move along the length of the elongate clamping means proportionately to the stretching of the sheet along an axis parallel to the clamping means (Column 3, lines 54-75), meeting applicant's claim.

Regarding Claim 26, Wood shows the process as claimed as discussed in the rejection of Claims 22 and 25 above, including a method wherein the secondary clamps are moved along the length of the elongate clamping means by the motion of the sheet (Column 3, lines 54-75), meeting applicant's claim.

Regarding Claim 27, Wood shows the process as claimed as discussed in the rejection of Claim 22 above, but he does not show heating the plastic sheet. Asano shows that it is known to carry out a method of stretching a plastic sheet having the step of heating the sheet of plastic material (Column 3, lines 52-59). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Asano's heating step in Wood's stretching process in order to make the plastic sheet as formable as possible to encourage homogeneous stretching.

Regarding Claim 28, Wood shows the process as claimed as discussed in the rejection of Claim 22 above, but he does not show a cooling process. Asano shows that it is known to carry out a method of stretching a plastic sheet wherein zones of the plastic material are selectively cooled (Column 4, lines 15-20). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Asano's cooling step in Wood's process in order to expedite the entire molding cycle.

Claims 17 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood and Asano as applied to claims 15 and 22, respectively, above, and further in view of Gronholz (U.S. Patent 2,968,065).

Regarding Claim 17, Wood shows the apparatus as claimed as discussed in the rejection of Claim 15 above, but he does not show means to carry out stepwise stretching in different directions. Gronholz shows that it is known to have a machine for stretching a plastic sheet, the machine being adapted to stretch a sheet first in one direction and then subsequently in a second direction orthogonal to the first direction (Column 3, lines 1-35). Gronholz and Wood are combinable because they are concerned with a similar technical field, namely, that of stretching apparatuses and methods. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Gronholz's stepwise stretching machine parts in Wood's and Asano's stretching machine in order to accommodate the need for different amounts of stretching forces.

Regarding Claim 23, Wood shows the process as claimed as discussed in the rejection of Claim 22 above, but he does not show a stepwise stretching process. Gronholz shows that it is

known to carry out a process of stretching a plastic sheet having the step of stretching said sheet along a second axis of said sheet whilst holding the sides of the sheet parallel to the second axis so as to allow the sheet to stretch proportionately along the second axis but so as to resist deformation of the sides orthogonal to the second axis, the second axis being orthogonal to the first axis (Column 3, lines 1-35). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Gronholz's stepwise stretching process in Wood's and Asano's stretching process in order to accommodate the need for different amounts of stretching forces.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patent is cited to further show the state of the art with regard to plastic stretching processes in general:

U.S. Patent 3,287,765 to Puente

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica A Fontaine whose telephone number is 571-272-1198. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Colaianni can be reached on 571-272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Maf

February 27, 2004



MICHAEL COLAIANNI
PRIMARY EXAMINER